697907

Brown, Cynthia

From: Fife, Greg
Sent: Friday, November 08, 2013 4:08 PM
To: Brown, Cynthia
Subject: Fw: Working today? Need a little help

From: Fife, Greg
Sent: Friday, November 08, 2013 1:26:31 PM
To: Delgado, Paige
Subject: RE: Working today? Need a little help

14. TRANSPORT INFORMATION

U.S. DOT
PROPER SHIPPING NAME: Powder, Smokeless
HAZARD CLASS: 1.3 C
UN NO.: UN0161
PACKING GROUP: II
LABEL: EXPLOSIVE 1.3C
REPORTABLE QUANTITY: Not applicable

From: Delgado, Paige
Sent: Friday, November 08, 2013 11:33 AM
To: Fife, Greg
Subject: RE: Working today? Need a little help

M6 is single base. Nitrocellulose, not nitrocellulose and nitroglycerin or nitroguanidine. According to the Army Manual on munitions, propellant chapter. What is the proper shipping name for M6? I have shipping documents for UN 0161 and 0160 which both fall under Powder, smokeless as the proper shipping name.

Thanks

Paige Delgado
U.S. EPA Region 6
On-Scene Coordinator

1445 Ross Avenue
Suite 1200 (6SF-PE)
Dallas, TX 75202
Delgado.Paige@epa.gov
469.371.2529 Mobile
214.665.2724 Work

From: Fife, Greg
Sent: Friday, November 08, 2013 11:21 AM
To: Delgado, Paige
Subject: RE: Working today? Need a little help

697907

For the most part, smokeless powder is made up of nitrocellulose, and/or nitroglycerin, and/or nitroguanidine. Those can be individual or mixed in "double-" or "triple-" based propellant.

Smokeless powder can also be for commercial small arms. Hercules, Alliant, DuPont, Hodgdon are or were common manufacturer.

A list of the military smokeless powders:
http://www.alternatewars.com/BBOW/Ballistics/Propellants.htm

From: Delgado, Paige
Sent: Friday, November 08, 2013 10:24 AM
To: Fife, Greg
Cc: Webster, Susan
Subject: Working today? Need a little help

Trying to get a list of possible chemicals/product names that fall under the proper shipping name "Smokeless Powder", in addition to M6 propellant?

We are trying to determine what was shipped to Explo and from whom. We have a lot of shipping documents that only indicate Smokeless Powder as the product ID.

Let me know if you can assist.

THANKS

Paige Delgado
U.S. EPA Region 6
On-Scene Coordinator

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U.S. Department
of Transportation

Pipeline and Hazardous
Materials Safety Administration

East Building, PHH – 32
1200 New Jersey Avenue, Southeast
Washington, D.C. 20590

The US Department of Transportation
Competent Authority for the United States

CLASSIFICATION OF EXPLOSIVES
FIRST REVISION

Based upon a request by Explo Systems Inc., 1600 Java Road, Minden, LA 71055, United States the following items are classed in accordance with Section 173.56, Title 49, Code of Federal Regulations (49 CFR). A copy of your application, all supporting documentation and a copy of this approval must be retained and made available to DOT upon request.

U.N. PROPER SHIPPING NAME AND NUMBER:
Powder, smokeless, UN0161

U.N. CLASSIFICATION CODE: 1.3C

Greg can you Research these 2 codes? Do they indicate M6? Cindy B.

REFERENCE NUMBER	**PRODUCT DESIGNATION/PART NUMBER**
EX2010040603	Reclaimed M6 Propellant

NOTES: This classification is only valid when the smokeless powder has been tested and found to have sufficient residual stabilizers present per US Army Safety Bulletin: "Inspection of Supplies and Equipment, Ammunition Surveillance Procedures" (SB 742-1). The following packaging methods are assigned:
Packaging Method A: Inner Packaging - Not necessary. Outer Packaging – UN 1G fiberdrum, each containing not more than one hundred and forty (140) pounds of smokeless propellant.
Packaging Method B: Inner Packaging: Flexible static-resistant reinforced plastic cloth and strapping lifting bag, each containing not more than eight hundred and eighty (880) pounds of smokeless propellant. Outer Packaging - UN 4G heavy-wall fiberboard box with a volumetric capacity of 119 gallons or less. (see 49 CFR Section 171.8 Definition for "Non-bulk packaging")

Yes, they do. Both are exclusive to M6

DATED: 05/05/2011

Harpreet K. Singh

For Dr. Magdy El-Sibaie
Associate Administrator for Hazardous Materials Safety

U.S. Department
of Transportation

East Building, PHH – 32
1200 New Jersey Avenue, Southeast
Washington, D.C. 20590

Pipeline and Hazardous Materials Safety Administration

**The US Department of Transportation
Competent Authority for the United States**

CLASSIFICATION OF EXPLOSIVES
EXPIRATION DATE:05-31-2015

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DATED: 06/02/2010

Harpreet K. Singh

For Dr. Magdy El-Sibaie
Associate Administrator for Hazardous Materials Safety

U.S. Department
of Transportation

East Building, PHH – 32
1200 New Jersey Avenue, Southeast
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DATED: 05/05/2011

Harpreet K. Singh

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DATED: 06/02/2010

Harpreet K. Singh

For Dr. Magdy El-Sibaie
Associate Administrator for Hazardous Materials Safety

Pg. 2072

Shipping Order

Date: March 23, 2010 Page 1 Of 1

Ship From:	Ship To:	Ship Via:
ALLIANT TECHSYSTEMS INC. RADFORD ARMY AMMUNITION PLANT P. O. BOX 1, STATE ROUTE 114 RADFORD, VA 24141-0100	EXPLO SYSTEMS, INC. 1600 JAVA ROAD MINDEN, LA 71055	R & R TRUCKING INC.

Freight Terms: F.O.B. RAFORD, VA

Item	Quantity to Ship	Unit of Measure	Part # or Material Code	Description	Quantity Shipped	Net Weight	Gross Weight
1	508.0 (1,120)	KG (LB)	M6 F/155MM	UN0161, POWDER, SMOKELESS, 1.3C, PG II (M6 F/155MM, M119A2) EX-8412097 **LOT ARV02K-072272** 8 FIBER DRUMS @ 63.5 KG (140 LBS) NET 68.5 KG (151 LBS) GROSS TEST STAB = CC 40't, NO Explosion (11-17-09) STABILIZER - DPA 1.067% (11-17-09) RJS	8 FD	508.0 KG (1,120 LBS)	547.9 KG (1,208 LBS)

Customer Order/Contract Number/PO Number	Bill to	Dept	Charge Code
NA - SAMPLES	CUSTOMER FURNISHED SHIPPING		NA

Special Shipping Instructions: (For Example: Reason for Shipment, Tooling Number or ROW Property Number, Order Release Number.)

SHIPPING USE ONLY

Shipping Information

Carrier	R & R TRUCKING	**Number of Cartons**	8 FD
Trailer No.	DROM 707	**Gross Weight**	547.9 KG (1,208 LBS)
Seal Nos.	000295, 000296	**Cubic Feet**	1.1 (39.4)
B/L Number	R-10586	**Date Shipped**	2010MAR23
Shipment No	AS 24302		

***Originated by: Roger Hollins**	**Date: 3-23-10**	**Phone No: 8331**	**Dept No.:410**

Shipment Authorization: Description Sheet ☐ C of C/C of A ☐ Emer Ship DUP-6677 ☐ MCA LAP Samples

***Product Center Manager / Representative: Jeff Bandel**	***Quality Engineer: Chris Smith**
***Traffic:** H R Blankenship 03/23/2010	***Shipped by:** R. Ross 3-23-10

DUP2565A Rev 8 02/16/10 *Not applicable to MCA LAP, NC or Acid shipments, or Non-Hazardous Shipments, ** Signatures may be electronic

144864

STRAIGHT BILL OF LADING–SHORT FORM

PG 1 OF 1

Shipper's No.: R-10586

Original–Not Negotiable 6050

R TRUCKING INC. RRUK
Name of Carrier/SCAC

DROM 707
Trailer Number and Tractor Number

PO/PR Number
W26H0Q10082001XXX
TCN Number

RECEIVED, subject to the classification and lawfully filed tariffs in effect on the date of the issue of this Bill of Lading.

From: Alliant Techsystems Inc.
Radford Army Ammunition Plant

At: RADFORD, VA 24141

Date: 03-23-2010

The property described below, in apparent good order, except as noted (contents and condition of contents of packages unknown), marked, consigned, and destined as indicated below, which said carrier (the word carrier being understood throughout this contract as meaning any person or corporation in possession of the property under the contract) agrees of carry to its usual place of delivery at said destination, if on its route, otherwise to deliver to another carrier on the route to said destination. It is mutually agreed, as to each carrier of all or any of said property over all or any portion of said route or destination, and as to each party at any time interested in all or any of said property, that every service to be performed hereunder shall be subject to all the terms and conditions of the Uniform Domestic Straight Bill of Lading set forth (1) in Uniform Freight Classification in effect on the date hereof. If this is a rail or rail-water shipment, or (2) in the applicable motor carrier classification or tariff if this is a motor carrier shipment.
Shipper hereby certifies that he is familiar with all the terms and conditions of the said bill of lading, including those on the back thereof, set forth in the classification or tariff which governs the transportation of this shipment and the said terms and conditions and hereby agreed to by the shipper and accepted for himself and his assigns.

Consigned to:
EXPLO SYSTEMS INC.
1600 JAVA ROAD
MINDEN, LA 71055

Tooele Army Depot
Tooele, UT
per Lionel

CC-K
NDIT
30 MAR 10
RCN: 07907A01

Packages No.	Packages Kind	*HM	Description of Articles, Special Marks and Exceptions	**Weight (Pounds)	Class or Rate
8 1	FD PLT	X	UN0161, POWDER, SMOKELESS, 1.3C, PG II M6 F/155MM, M119A2 EX-8412097	547.9 KG (1,208 LBS)	
				181.4 KG (400 LBS)	
			//SHIPPER TO LOAD – CONSIGNEE TO UNLOAD// SIGNATURE AND TALLY RECORD (STR) REQUESTED	729.4 KG (1,608 LBS)	
			STAB = CC 40 +, NO Explosion (11-17-09)		
			STABILIZER = DPA 1.06% (11-17-09) RY		
			REF: ORDER RELEASE 2010-042		
			SEAL NOS: 000295, 000296		
			1.3 PLACARDS APPLIED		

LOC: 1257

125/
3/30/10

*Mark with "X" all Hazardous Material

Subject to Section 7 of Conditions of applicable bill of lading, if this shipment is to be delivered to the consignee without recourse on the consignor, the consignor shall sign the following statement. The carrier shall not make delivery of this shipment without payment of freight and all other lawful charges.
ALLIANT TECHSYSTEMS Inc.

Per _____
(Signature of Consignor)

"This is to certify that the above-named materials are properly classified, packaged, marked, and labeled, and are in proper condition for transportation according to the applicable regulations of the Department of Transportation."

R. H. 3-23-10

If charges are to be prepaid, write or stamp here, "To be Prepaid."

Received $ _____
to apply in prepayment of the charges on the property described hereon.
_____
Agent or Cashier
Per _____
(The signature here acknowledges only the amount prepaid.)

**If the shipment moves between two ports by a carrier by water, the law requires that the bill of lading shall state whether it is "carrier's or shipper's weight."
NOTE - (1) Where the rate is dependent on value, shippers are required to state specifically in writing the agreed or declared value of the property, as follows: "The agreed or declared value of the property is hereby specifically stated by the shipper to be not exceeding _____ per _____."
(2) Except on California intrastate shipments, where the applicable tariff provisions specify a limitation of the carrier's liability absent a release or a value declaration by the shipper and the shipper does not release the carrier's liability or declare a value, the carrier's liability shall be limited to the extent provided by such provisions. See NMFC Item 172.

Alliant Techsystems Inc.
RADFORD ARMY AMMUNITION PLANT

Per

Shipper : H. R. Blankenship 03/23/2010
H. R. BLANKENSHIP, TRANSPORTATION ANALYST
Carrier should send prepaid freight bills to
P. O. Box 1, Radford, VA 24143-0100 for payment

Agent : R & R TRUCKING INC.

Per: Eldon Scott

IN THE EVENT OF ANY EMERGENCY CONCERNING THE CHEMICALS IN THIS SHIPMENT, CALL TOLL FREE NUMBER 1-800-424-9300 DAY OR NIGHT.

DUP9072 Rev 1 04/27/07

707 144864

Alliant Ammunition and Powder Co.
Radford Army Ammunitions Plant
P.O. Box 1
Radford, VA. 21414-0100
{PRIVATE }
Regular Telephone No: (540) 639-8143
Emergency Telephone No: (540) 639-7323
CHEMTREC Emergency No.: (800) 424-9300
DATE: August 26, 1999 Revised July,20, 2005

SECTION 1: PRODUCT IDENTIFICATION

PRODUCT NAME: Propellant M-6 Standard

APPEARANCE: solid

COLOR: yellow/tan in color black if coated with graphite

ODOR: odorless

CASRN: proprietary mixture

HMIS RATINGS

HEALTH HAZARD: 2 moderate

FLAMMABILITY HAZARD: 4 severe

REACTIVITY HAZARD: 4 severe

CHEMICAL DESCRIPTION: propellants

SECTION 2: HAZARDOUS COMPONENT INFORMATION

Chemical Name	CAS#	PEL/TLV
nitrocellulose	proprietary	not established
dibutylpthalate	proprietary	5 mg/m^3
dinitrotoluene	proprietary	0.15 mg/m^3
diphenylamine	proprietary	10 mg/m^3
potassium sulfate	proprietary	not established

SECTION 3: HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW: DANGER!
Extremely flammable
Accidental firing or explosion is likely to cause severe injury or death.
Electrostatic charges generated by emptying package in or near flammable vapor may cause flash fire. May form flammable dust-air mixtures.
May cause skin irritation.
Ingestion may cause headache, insomnia, fatigue, nausea, vomiting, seizure, convulsions, and loss of consciousness.

SECTION 4: FIRST AID PROCEDURES

EYE: Remove contact lenses. Hold eyelids apart. Immediately flush eyes with plenty of low pressure water for at least 15 minutes. Get immediate medical attention.

SKIN: Wash thoroughly with soap and water. Remove contaminated clothing. Thoroughly wash clothing before reuse. Render unusable and discard contaminated shoes and leather articles.

INHALATION: Remove to fresh air. Give artificial respiration. If breathing is difficult, give oxygen. Get immediate medical attention.

INGESTION: If conscious, drink large quantities of water. Induce vomiting. Call a physician or poison control center immediately. NEVER give anything by mouth to an unconscious person. NEVER induce vomiting in an unconscious person.

SECTION 5: FIRE HAZARD:

FIRE FIGHTING PROCEDURES: EVACUATE AREA IMMEDIATELY. DO NOT fight fire.

EXTINGUISHING MEDIA: Deluge with large quantities of water as quickly as possible by automatic sprinklers or fire hose from a protected location. Product is self- oxidising.

CONDITIONS TO AVOID: Avoid impact, friction, heat, sparks, or flame.
Avoid conditions that generate dust. This product may form flammable dust-air mixtures.
Avoid emptying package in or near flammable vapors. Static charges may cause flash fire.

HAZARDOUS COMBUSTION PRODUCTS:

Combustion products include: carbon dioxide, nitrogen oxides, aldehydes, carboxylic acids, methane and hydrogen cyanide.

SECTION 6: ACCIDENTAL RELEASE MEASURES:

Clean up spills immediately using soft natural bristle brush and conductive rubber or conductive plastic shovel. Use caution; material is sensitive to initiation from sources such as heat, flame, shock, friction or sparks.

In case of accidental spill or release, refer to Section 8, Personal Protective Equipment and General Hygiene Practices.

SECTION 7: HANDLING AND STORAGE:

GENERAL MEASURES:

Electrically ground all equipment.
Blanket vessel with inert gas when emptying bags where flammable vapors may be present.
Electrically ground operator and pour material slowly into conductive, grounded chute.
DO NOT PRESSURIZE OR EXPOSE CONTAINERS TO HEAT, FLAME, SPARKS, STATIC ELECTRICITY, OR OTHER SOURCES OF IGNITION
Follow appropriate D.O.D., N.F.P.A. and B.A.T.F. explosive safety measures. Local ordinances may apply.
For handling and storage requirement see 29 CFR 1910.109.
Store in cool, dry place: approximately 68°F (20°C)
Store only in Department of Transportation approved containers.
Check old product for deterioration regularly.
Keep container closed when not in use.

MATERIALS OR CONDITIONS TO AVOID:

Avoid storing product near incompatible materials. See MSDS Section 10
Do not store near flammable materials.
Do not keep deteriorated or salvaged product.
Keep away from heat, flame sparks and other ignition sources.
Do not store in direct sunlight or expose to UV radiation.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

GENERAL HYGIENIC PRACTICES:

Avoid contact with eyes, skin and clothing.
Avoid breathing dust, vapor, or mist.

Handle in areas with adequate ventilation.
Wash thoroughly after handling, and before eating, drinking, or smoking
Avoid contamination of food, beverages, or smoking materials.
Remove contaminated clothing promptly and clean thoroughly before reuse.

PERSONAL PROTECTIVE EQUIPMENT:

Safety glasses
Impervious gloves
Appropriate respiratory protection is required to reduce airborne contaminants may exceed acceptable limits. Respirators should be selected and used in accordance with OSHA, Subpart I (29 CFR 1910.134) and manufacturer's recommendations.
Flame-retardant clothing
Static-free clothing
Wear conductive safety shoes.

WORK PRACTICES AND ENGINEERING CONTROLS:

Material is shock sensitive. Use care in handling.
Friction can cause ignition. Keep away from ignition sources.
Prevent build-up of static electric charges.
Use process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits. Discharge from the ventilation system should comply with applicable air pollution control regulations.
DO NOT smoke in areas where powder is stored or used.
Eyewash fountains and safety showers should be easily accessible

PROTECTIVE MEASURES DURING REPAIR AND MAINTENANCE:

Completely remove product from area, and thoroughly clean all equipment, piping, or vessel before beginning maintenance or repairs.
Eliminate ignition sources and prevent build-up of static electrical charges.
Use spark-proof tools and explosion-proof equipment.
A work permit system is recommended for any preparation and clean up.
Wetting work area with water will greatly reduce hazards.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES:

Volatile (Wt.)%: By volume less than 1.90% maximum

Solubility in Water: Negligible

Specific Gravity: (H^2O = 1)

Vapor Pressure: Negligible

Evaporation Rate: (Butyl Acetate = 1) less than 1

SECTION 10: STABILITY AND REACTIVITY:

GENERAL STABILITY CONSIDERATIONS:

Stable under recommended handling and storage conditions.
Material is sensitive to friction, shock, impact, and electrostatic discharge.

INCOMPATIBLE MATERIALS:

Incompatible with: acids, oxidizing agents, alkalies and amines, and strong sunlight or ultraviolet light.

HAZARDOUS DECOMPOSITION PRODUCTS:

None anticipated under normal or recommended handling and storage conditions.

HAZARDOUS POLYMERIZATION:

Not anticipated under normal or recommended handling and storage conditions

SECTION 11: TOXICOLOGICAL INFORMATION

REPORTED HUMAN EFFECTS: CARCINOGENICITY/TERATOGENICITY INFORMATION:

2,4-Dinitrotoluene (DNT) - Harmful if inhaled or absorbed through skin; reduces blood's oxygen carrying capacity. Symptoms may be delayed. Causes skin and eye irritation. May cause cancer based on tests with laboratory animals.

2,4-DNT is a slight eye irritant, a slight to mild skin irritant, but is not a skin sensitizer in tests with laboratory animals. Toxicity described in animals from a single skin application included cyanosis, low red blood cell counts, liver and bone marrow damage, congested spleen, distended gall bladder, and edema of the brain.

Individuals with preexisting diseases of the cardiovascular system, nervous, bone marrow, or liver may have increased susceptibility to the toxicity of excessive exposures

The ACGIH has established Biological Inducers (BEI) for methemoglobin inducers of 1.5-% methemoglobin in blood.

REPORTED ANIMAL EFFECTS:

Toxic effects described in animals from a single inhalation exposure include labored breathing and irritation. By ingestion, single exposures produced cyanosis and incoordination. Repeated exposures produced changes in the liver, spleen, and kidney, and changes in blood analysis (especially methemoglobinemia), testicular degeneration with depressed spermatogenesis, and incoordination.

Tests in some animals demonstrate carcinogenic activity with the potency increasing as the level of 2,6-dinitrotoluene increases. Some tests with pure 2,4-Dinitrotoluene suggest that this isomer may not be carcinogenic. Test in animals demonstrate reproductive toxicity, but do not demonstrate developmental toxicity. The compound produced genetic damage in bacterial and mammalian cell cultures as well as in animals.

POTENTIAL HEALTH HAZARD ASSOCIATED WITH OPEN AIR BURNING OF M-6 PROPELLANTS

1. Recent studies conducted by the U. S. Army Environmental Hygiene Agency (USAEHA) have shown that the solid residue produced by the open air burning of M-6 propellant may be hazardous. This finding is specific to residues from open air burning and does not apply to residue remaining in the breech and barrel of the broad range of military weapons after firing. M-6 propellant residue composition is almost chemically identical to the M-1 residue and should be considered to present the same potential hazard.

2. Research is on going to further quantify the potential hazard of the residue and smoke as well as to characterize worker exposures at installation burning grounds and in the field.

3. Although some information remains to be gathered, we are certain that the overall effects of exposure to the potentially hazardous propellant residues are dependant upon the duration and magnitude of exposure. In an effort to minimize exposure, all activities conducting open air burning of M-6 propellant, whether in Garrison or in the field should take the following actions:

a. Inform all potentially exposed personnel participating in open air burning of these propellants that direct skin contact with the solid residue or inhalation of the smoke may be a health hazard. Prohibit smoking, eating, or drinking in areas where propellant is being burned.

b. Review SOP's for open air burning of these propellants to ensure they prescribe burning in a burn pan and to ensure that solid residues are treated as potentially toxic waste IAW installation disposal policies.

c. Review SOP's to ensure that they prescribe burning and disposal methods, which preclude unprotected personnel from contacting the smoke or residues from open air burning.

d. In those cases where direct contact with solid residue or smoke cannot be avoided, ensure that personal protective measures are used to include the appropriate use of gloves, coveralls, and respirators. Occupational health personnel from the supporting medical unit activity can assess potential exposures and recommend specific protective equipment. Require thorough handwashing before eating, smoking, or using toilet facilities.

SECTION 12: ECOLOGICAL INFORMATION:

ECOLOGICAL INFORMATION:

SECTION 13: DISPOSAL CONSIDERATIONS:

Disposal (if explosive) should be carried out under the direct supervision of a qualified person. Call Alliant Techsystems for assistance if needed. For industrial disposal, federal hazardous waste regulation allows open burning of explosive wastes in permitted facilities. Burn in the open in an isolated location in small, shallow piles not over one inch deep.
Quantity burned at any one time should not exceed one pound. Use an ignition train of slow-burning combustible material to permit retreat to a safe distance.

SECTION 14: TRANSPORTATION INFORMATION

U.S. DOT:

For information regarding transportation of this product, please contact Alliant Techsystems at 540-638-8134

SECTION 15: REGULATORY INFORMATION:

The following environmental and regulatory data are provided to assist users of this product on defining their regulatory environmental compliance.

SARA SEC. 313 Chemicals

	Sec. 302 (EHS) TPQ	Section 304 EHS RQ	Section 304 CERCLA RQ	Sec. 313	RCRA Code
Product or Components					
Dibutylpthalate			10	313	U069
Dinitrotoluene			10	313	U105
Diphenyamine				313	

Section 313:

This product does contain chemicals subject to reporting under Section 313 of Title III of the Superfund Amendments and Reauthorization Act and 40CFR375.

CERCLA

This product does contain chemicals subject to reporting as a CERCLA Hazardous Substances under 40CFR302.4.

RCRA

This product exhibits the following characteristics listed in 40CFR261, Subpart C: ignitability and reactivity (D003).

SECTION 16: OTHER INFORMATION

LIST OF ACRONYMS:

ACHIH:	American Conference of Governmental Industrial Hygienist
AICS:	Australian Inventory of Chemical Substances
AIHA WEEL:	American Industrial Hygienists Association - Workplace Environmental Exposure Level
ANSI:	American National Safety Institute
C:	Ceiling
CASRN:	Chemical Abstracts Service Registry Number
CERCLA:	Comprehensive Emergency Response, Compensation and Liability Act
DSL:	Domestic Substances List (Canadian)
EINECS:	European Inventory of Existing Commercial Chemical Substances
HMIS:	Hazardous Materials Identification System
IARC:	International Agency for Research on Cancer
MITI:	Ministry of International Trade and Industry (Japanese)
N/A:	Not Applicable
NDSL:	Non-domestic Substances List (Canadian)
NOR:	Not Otherwise Regulated
NTP:	National Toxicology Program
OSHA:	Occupational Safety and Health Administration
PEL:	Permissible Exposure Limit
RCRA:	Resource Conservation and Recovery Act
RQ:	Reportable Quantity
SARA:	Superfund Amendment Reauthorization Act
STEL:	Short Term Exposure Limit
TLV:	Threshold Limit Value (ACGIH)
TPQ:	Threshold Planning Quantity
TSCA:	Toxic Substances Control Act
TWA:	Time Weighted Average

The information and recommendations contained in this Material Safety Data Sheet have been compiled form sources believed to be reliable and to represent the most reasonable current opinion on the subject when the MSDS was prepared. No warranty, guaranty or representation is made as to the correctness or sufficiency of the information. The user of this product must decide what safety measures are necessary to safely use this product, either alone or in combination with other products, and determine its environmental regulatory compliance obligations under any applicable federal or state laws.